

AMENDMENTS TO THE SPECIFICATION

Please delete paragraph [0009] and replace with the following amended paragraph:

[0009] The accompanying drawings, which are incorporated into and constitute a part of the specification, illustrate specific embodiments of the invention and, together with the general description of the invention given above, and the detailed description of the specific embodiments, serve to explain the principles of the invention.

FIG. 1 is an illustration comparing conventional PCR and Polymerase-Based Synthesis.

FIG. 2 is a schematic illustration of parallel synthesis.

FIG. 3 is a schematic illustration of the assembly of a gene, Green Fluorescence Protein, and its cloning and functional expression in cells.

FIG. 4 illustrates another embodiment of a system of creating long DNA sequences, e.g., 1-10 kilobases, from short oligos of length n (n -mers) of the present invention.

FIG. 5 illustrates another embodiment of a system of creating long DNA sequences, e.g., 1-10 kilobases, from short oligos of length n (n -mers) of the present invention

FIG. 6 illustrates another embodiment of a system of creating long DNA sequences, e.g., 1-10 kilobases, from short oligos of length n (n -mers) of the present invention

FIG. 7 illustrates another embodiment of a system of creating long DNA sequences, e.g., 1-10 kilobases, from short oligos of length n , $n+1$, $n+2$, etc. of the present invention (SEQ ID NO: 1).

Please delete paragraph [0068] and replace with the following amended paragraph:

[0068] Figure 7 illustrates one possible scenario of using oligos from multiple reading frames for synthesizing the sequence 5' CGACTCACTAT 3' (SEQ ID NO: 1). If the starting oligos are all of size $n=4$, every possible combination of tetramers in the four possible reading frames will result in error-prone combinations in which undesired hybridizations are as likely as desired hybridizations. However, if one pentamer is used in combination with the remaining tetramers, it is possible to generate a group of oligos that are not likely to hybridize in undesired combinations.